COMMENT

Narrative-based misinformation in India about protection against Covid-19: Not just another "moo-point"

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Abstract

After India's first confirmed case of SARS-CoV-2 appeared in late January 2020, misinformation surrounding the outbreak and "cures" for the virus spread across the nation through various platforms. Across the globe, social media applications like WhatsApp and Facebook have played a vital role in the advancement of misinformation; however, in India, the dissemination of inaccurate information has been particularly exacerbated by public figures advancing their conservative ideologies and bringing the "sacred" cow to centre stage. Several influential religious and political leaders were witnessed vehemently supporting their long-held narratives that cow excreta is a "proven" precautionary remedy against most diseases, including coronavirus. Hence, to debunk such claims, the authors, in this essay, first analyse media used to circulate unfounded information concerning coronavirus across the world, followed by citing India-specific events where customary beliefs of Hindus have now taken the form of practices which can worsen the spread, as such practices lack significant scientific backing. Finally, we discuss the impact of such misinformation on human rights, and how states and social media companies can combat the infodemic.

Keywords: *Coronavirus, cow products, human rights, social-media, misinformation*

Introduction

Since the start of the Covid-19 pandemic, scientists have been trying in every possible way to find a vaccine for the potentially life-threatening SARS-CoV-2 virus, and disseminating information about practices which can reduce the spread of the virus. These include regular hand washing, maintaining cleanliness and proper sanitisation of one's surroundings; and physical distancing paired with self-quarantine. But unfortunately, countering this, misinformation regarding the virus and its treatments has reached the general public through various social media platforms. The World Health Organization (WHO) has repeatedly warned that misinformation about Covid-19 impedes the effectiveness of measures to combat the pandemic (1, 2) and can result in the violation of human rights (1).

Misinformation can be defined as "the unintentional spread of false or inaccurate information without malicious intent", which can at times be indistinct for some from a similar concept termed "disinformation" (3), ie "false, inaccurate, or disingenuous information designed, presented and endorsed to cause public harm deliberately or for-profit" (3), commonly referred to as "fake news". Misinformation can come from a variety of sources including state actors, organised non-state actors, and even individuals acting spontaneously or organically. Such false information can be spread "by sincerely believing in its truthfulness, knowing that it is not genuine, or merely being indifferent to its truth value" (2). This misinformation can be as dangerous as the virus, as they both possess the potential to cause significant social harm that may even lead to loss of human life (2).

Scholars have found that genuine sources of information about Covid-19, such as the WHO, had dramatically fewer engagements on social media than sources of misinformation (4). Nevertheless, factually correct information is crucial to safeguarding effective responses to Covid-19, together with the adopting of protective measures by the public (1). Without access to accurate and up-to-date information from the authorities on state policies and actions, individuals, doctors, and epidemiologists cannot conclusively protect themselves and others (1). Thus, inevitably, some people across the globe are still unaware of the seriousness of this disease and accordingly have promoted untested remedies to protect themselves from it, and this deepens health risks rather than mitigating them (1).

In March 2020 in New Delhi, activists of a right wing group

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"hosted a cow urine-drinking event …, hoping that the practice staves off the coronavirus" (5). Certain legislators from the ruling Bharatiya Janata Party have advocated for cow urine and cow dung as being helpful in curing diseases like cancer, and possibly in treating coronavirus as well (6). State backing of such erroneous information, through omission, that is, silence, or ignorance, or through commission, eg, such statements made by some individuals on different platforms that cow urine and dung can treat Covid-19 (6), despite there being no scientific evidence regarding its efficacy against the virus, has had an adverse impact on the health and rights of people.

Cow-excreta as a remedy

The study of misinformation surrounding cow-excrement (ie both cow urine and cow dung) as a remedy for Covid-19 becomes fathomable only after understanding India's unique history with its veneration of cattle. In India, a predominantly Hindu country, with just under 80% of the country identifying as Hindus in the 2011 census (7), cows have traditionally been worshipped as a sacred animal (8, 9). A large proportion of the Hindu community continues to believe that cow urine and cow dung hold medicinal properties that prevent and cure a number of diseases known to humankind. For example, cow urine has been used externally as a lotion and in ointments to treat ailments such as psoriasis and eczema. It has also been claimed that it is useful in the preparation of oral medications and beverages to treat heart conditions and even cancer (10).

The basis of these beliefs lies primarily in the customary practices of Hinduism, and in a traditional Indian system of medicine, Ayurveda (11). Cow urine makes up one of the five elements of *Panchagavya* (literally "five cow products"), the others being cow ghee, curd, dung and milk, used in many Ayurvedic treatments. However, there is very minimal scientific evidence in support of its anti-viral properties.

Evaluating the properties of cow excreta to determine its effectiveness in fighting SARS-CoV-2

Before the authors analyse the secondary studies already carried out on cattle excreta as a preventive against viral diseases, it is crucial to understand what cow urine and cow dung principally contain. Cow urine usually comprises 95% water, 2.5% urea, and the rest consists of minerals, enzymes, and some aspects of iron, calcium, phosphorus, potash, ammonia, manganese, iron, sulphur, phosphates, potassium, cytokine and lactose (12). While the presence of proline amino acid in cow urine is proven to possess antibacterial properties, analysed using the well-agar diffusion method to combat various non-pathogenic and pathogenic bacteria such as *Pseudomonas aeruginosa, Escherichia coli, Salmonella typhimurium,* there may lie an argument that cow urine can be beneficial against some bacterial infections (13, 14).

Cow dung, while generally being used as an alternative burning fuel, mosquito repellent, cleansing agent, and in agriculture to increase soil fertility as a phosphate solubiliser, often finds its usage in drugs too, particularly those manufactured in India. Processed cow dung in the form of dried powder (using an oven or natural sunlight) and dung ash (prepared in a muffle furnace) has been experimentally found to possess specific antibacterial as well as antifungal abilities. Numerous bacteria and fungi such as *Escherichia coli, Klebsiella pneumoniae, Cyanobacteria, Staphylococcus aureus,* and *Bacillus subtilis* are experimentally inhibited by the use of various forms of cow dung (15, 16, 17)

On the other hand, it is important to understand that cows are a reservoir of numerous pathogenic microorganisms that can cause infections and zoonotic diseases in humans (18) through the transmission of zoonotic pathogens like *Salmonella spp, Listeria monocytogenes, Yersinia enterocolitica, Escherichia coli,* and protozoa such as *Giardia lamblia, Cryptosporidium parvum* (19), which are usually present in the dung or urine of a bovine animal. For instance, *Enterohaemorrhagic Escherichia coli* which is commonly found in the gastrointestinal tract and duct of ruminant animals, contains certain strains which might lead to zoonotic diseases in humans (18). These individual E coli strains are categorised based on their virulence properties, with strains containing Shiga toxins, which studies have found can result in human diseases like bloody diarrhoea and haemolytic uremic syndrome (a life-threatening condition having clinical manifestations such as non-immune haemolytic anaemia wherein the red blood corpuscles are destroyed at a high rate coupled with platelet count gradually decreasing and kidney failure due to damage of the small blood vessels)(20). Moreover, rotavirus infection which can be transmitted zoonotically (21), is also one of the prominent threats to the life of children less than five years of age, especially if they encounter such cattle dung or urine. Therefore, any person opting to consume cow urine as a remedy for coronavirus might end up having these deadly microbes in their system, doing them more harm than good. Likewise, the application of cow dung on one's body can also lead to numerous infections which could accidentally slip into the human body through the pores. Hence, it is advisable to avoid the use of cow dung as a preventive against the coronavirus.

Furthermore, another negative health effect of consuming cow excreta is that cattle faeces have been found to possess antibiotic-resistant bacteria and enzymes that are zoonotic in nature (22). Within the suggested antibiotic-resistant molecules, B-lactamase is one of the enzymes found to be existing in cattle excreta (23), which can inhibit the actions of antibiotics like penicillin, cephalosporin, and monobactams having B-lactam structure. The B-lactam antibiotics are used to obstruct the pathogenic bacterial cell wall from elongation or cross-linking inside the body, which is necessary for the multiplication of the concerned bacterial cell for pathogenesis (24). The presence of B-lactamase inside the body might hinder the functions of such useful antibiotics.

Endorsement of cow excreta as a Covid cure: The relationship between misinformation and human rights

In spite of scientific studies suggesting the ill-effects of consumption or application of cow-excreta, such traditional beliefs are being practised in regions across India in attempts to mitigate and tackle the Covid-19 virus. This is also being advocated by state actors, leading to a violation of human rights.

Some immediate consequences of misinformation surrounding cow-excreta as a cure for Covid-19 were witnessed with the sales of cow urine significantly increasing in the state of Gujarat to about 6,000 litres a day, as it is was claimed to contain immunity-boosting properties (25). Gujarat has been one of the states hit hard by the virus, with a total of 14,241 cases as of August 16, 2020. Similar reports came from West Bengal where a roadside vendor was found selling cow urine and cow dung in jars, attracting naïve and frightened people (26).

While it is understood that the state authorities cannot comprehensively monitor the spread of coronavirus and the rise of new hotspots instantaneously, there are certain approaches which both state actors and social media companies can undertake to ensure that the dissemination of misinformation is stopped, while respecting and protecting the human rights of people (27). International law presents a comprehensive legal framework obliging states to limit their harmful consequences, adequately respond to ensuing health emergencies, and support in achieving those aims (28).

International law requires states and state actors to take all viable measures for the protection of human rights to life and health, with proper due diligence, as reasonably available to them (2). However, the obligations of due diligence in adopting such measures may be impacted by the technical, human and economic resources of a state (28). This is especially relevant in a world marked by inequality and even more so in a polarised country like India. Scientific knowledge concerning Covid-19 is continuously evolving. This, together with the need for compliance with other international obligations, makes the adoption of such measures more challenging (27). Nevertheless, at the very least, these measures must include the communication of accurate information on public health (2), especially as state actors are in a position of trust and influence. Misinformation by state actors would inherently attract more attention as the media inevitably amplifies its impact, which may lead to public distrust in measures to combat the pandemic (2).

Article 19 of the Universal Declaration of Human Rights provides that "everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers"(29). Therefore, the argument can be made that sources can disseminate misinformation with a bona fide (even if misguided) intention of contributing to the public debate (2). They have a right to free speech. Nevertheless, this argument only remains relevant if there is no corresponding impairment of the rights of *other* citizens in society through such false information (30). There must be a balance between freedom of speech and protecting human rights. There is a more significant threat when misinformation about an international health crisis comes from some state actors, as it can both deteriorate the trust in state authorities and endorse misguided responses by the public and health officials (1).

An instance of such zealotry was witnessed at the cow urine-drinking event in March 2020, mentioned earlier, (5) in New Delhi, along with prayers directed to both the cow and the virus, with a hope that this practice would stave off the further spread of Covid-19 (5). Two hundred people reportedly attended the event, and the group hoped to host similar events elsewhere in India (31). This act was replicated in Kolkata by a BJP activist who asserted that the urine would shield individuals from catching the coronavirus (32).

This kind of misinformation is detrimental to any society, as it diminishes the threat posed by the virus (2), which can drive the pandemic curve and result in mass deaths, just as in India, which has been among the countries worst hit by Covid-19. As of April 18, 2020, India had recorded 177,168 deaths by coronavirus (33).

The impact of misinformation varies within each society, and consequently, so should the responses by the state as there cannot be a one-size-fits-all response. For instance, some communities may require stringent speech-restrictive measures. In Germany, denial of the Holocaust is dealt with as a criminal offence. However, most states do not require such strict laws (2). States should avoid responding to misinformation through harsh criminal penalties on speech where there is not enough evidence, and less restrictive measures have not been tried (2). Nevertheless, the concerned activist in Kolkata was arrested for offences attracting Sections 269, 278, and 114 of the Indian Penal Code, 1860 (34). There is no evidence that the arrest has reduced the sales of cow urine.

It may be that the activists mentioned in the above incidents sincerely believed in the truth of their message and were propagating it without any desire to cause harm, but it is crucial to note that such statements when made by state actors can have an impact on the health and fundamental and human rights of other individuals. States can undertake certain steps to ensure that the dissemination of misinformation is stopped, while also protecting the human rights of people (1, 27).

As a system of defense against the ill-effects of misinformation, first, states must address misinformation and disinformation by not endorsing misleading information and themselves providing trustworthy

information via "robust public messaging, support for public service announcements, and emergency support for public broadcasting and local journalism (for instance, through government health advertisements)"(35) The current Indian regime has enforced this through the deployment of traditional mainstream media, including television, radio and press, to convey the government's major state policies on the virus to the public (36).

Governments need to formulate long-term policies which address the structural causes behind the public's susceptibility to misinformation (2) under the current circumstances, and to prevent such chaos from recurring, if another pandemic were to occur. Most of the examples of misinformation outlined in this note merely reinforce existing biases such as cows possessing miracle healing properties. This is vital in India's case, as citizens will be particularly susceptible to accepting as true misinformation that is based on their cultural beliefs, due to what psychologists call "motivated reasoning" — how people process political information (37). However, any welfare state must protect its citizens from such information which can severely impact their health and safety.

Conclusion

Some Indian scholars have asserted that cow by-products have anti-cancer and hepatoprotective potential by altering enzymatic activities; and that cow urine can be used as an insecticide, and as a regulator for various ailments like intestinal gas, acidity, and cough (8). However, there are no significant studies that show it can prevent or cure or provide immunity against Covid-19 (38).

Therefore, the consumption of cow urine or application of cow dung on one's body might lead to possible zoonotic transmission of gut and intestinal microbiota from cows spreading severe gastrointestinal infections and adversely affecting human health. No scientific studies support the claims of numerous leaders that microbes in the cow excreta may have anti-viral properties to curb the spread or elimination of SARS-CoV-2. Hence, it is imperative to ensure that no counterfactual data or information is spread, especially by influential state actors, regarding possible cures for this virus without prior extensive testing of such claims. Inaccurate information would only worsen the current health crisis, leading to more rampant spread of the pandemic and breach of human rights laws. States must employ justified methods to prevent the spread of misinformation and provide their citizens with accurate information, without which the health crisis will only worsen.

In order to develop resilience against misinformation, the government must ensure the fight against misinformation is a mass programme, just as it did with the Swachh Bharat Mission* for better sanitation, and create a non-biased national task force that serves as a "rapid response mechanism" to synchronise the work of public and private agencies (36). Lastly, the state can investigate the possibility of creating forums for citizens to access accurate information (36). The Indian government has already launched a chatbot to provide accurate information on the virus, but it could develop a fact-checking unit that provides accurate information to the public via a website. By employing these suggestions to combat misinformation, the government is more likely to be successful in building resistance against misinformation and upholding the dissemination of ethical and scientific information to fight the pandemic.

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***Note:** The Government of India launched its Swachh Bharat Mission in 2014, with the aim of achieving universal sanitation, improving cleanliness and eliminating open defecation in India by October 2019.The programme is considered India's biggest drive to improve sanitation, hygiene and cleanliness in the country.*

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